

REMARKS

This Response is submitted in reply to the Office Action mailed on January 23, 2007.

Claims 1-12 and 18-25 are pending in the patent application. Claim 24 has been amended. New claim 16 has been added. No new matter has been added by this response.

In the Office Action, the drawing is objected to under 37 C.F.R. § 1.83(a) because the Examiner states that certain terms in the claims must be shown in the drawing or deleted from the claims. Specifically, the Examiner states that the term “temperature-sensing circuit” of claims 1-3, 8-9, and 11 must be shown in the drawing. As stated on page 6 of the Application:

When both of the switches 33 and 34 are closed, the resistor 32 is connected in parallel with the resistor 30 and the duty cycle is at a maximum, resulting in maximum lamp intensity or brightness. If the temperature of the lamp assembly 10 reaches a predetermined dangerous level, the thermal switch 33 opens to disconnect the resistor 32, thereby increasing the effective resistance of the parallel circuit and reducing the PWM duty cycle and, thereby, the brightness of the lamp. This reduced brightness level is maintained until the lamp cools sufficiently to reclose the thermal switch 33...

Thus, thermal switch 33 constitutes the “temperature-sensing circuit.” Applicants therefore submit that the “temperature-sensing circuit” of the above claims is shown in the drawing and supported in the specification.

The Examiner also identifies the term “temperature-responsive means” in claims 18-19 as not being shown in the drawing. In claim 18, the “temperature-responsive means” reduces the PWM duty cycle when the lamp temperature exceeds a predetermined temperature. Furthermore, claim 19 states that the temperature-responsive means includes the “thermal switch means.” The “temperature-responsive means” of claims 18 and 19 is therefore referring to the thermal switch 33 and resistors 30 and 32 as described above. Accordingly, for the reasons

provided above, Applicants submit that the “temperature-responsive means” of claims 18 and 19 is shown in the drawing and supported in the specification.

The Examiner also states that the “sensing lamp circuit temperature” in claims 22-23 and 25 is not shown in the drawing. The function of “sensing lamp circuit temperature” is performed by the “temperature-sensing circuit” described above. Accordingly, for the reasons provided above, Applicants submit that the function of “sensing lamp circuit temperature” is sufficiently shown in the drawing and supported by the specification.

Additionally, the Examiner states that the “impedance altering circuitry” of claims 2-4 is not shown in the drawing. As stated in the above-quoted portion of the specification, the impedance of the parallel circuit of resistances 30 and 32 is altered by opening of the thermal switch 33, thereby effectively removing the resistor 32 from the circuit. Thus, the “impedance altering circuitry” is the combination of elements 30, 32 and 33, which is shown in the drawing.

The Examiner also states that the term “RC circuit” in claim 3 is not shown in the drawing. The term “RC circuit” stands for resistor-capacitor circuit. As stated on page 3 of the specification, the timing circuit 22 includes a capacitor 23 which is charged through resistor 24-27 and discharged through resistors 30 and 32. (See the specification at pgs. 3-4). Applicants therefore submit that the drawing shows the timing circuit including the RC circuit of claim 3, namely, capacitor 23 and resistors 24-27, 30 and 32.

For all of the above reasons, Applicants submit that the terms “temperature-sensing circuit,” “temperature-responsive means,” “sensing lamp circuit temperature,” “impedance altering circuitry,” and “RC circuit” are shown in the drawing and supported in the specification and therefore Applicants request that the objection to the drawings be withdrawn.

Claim 24 is objected to because the Examiner states that the term “altering includes” in claim 24 should be changed to “altering resistance includes.” Applicants have amended claim 24 in accordance with the Examiner’s suggestion.

Claims 1-3, 6-8, 11-12, 18-23 and 25 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,198,234 to Henry (“*Henry*”). Applicants disagree with and traverse this rejection for the following reasons.

Claim 1 is directed to a drive circuit for a lamp that includes an electronic switch connected in series with a lamp and a source of DC voltage and also has a control input terminal. The drive circuit includes a pulse-width-modulation or PWM control circuit having an input that is connectable to the source of DC voltage and an output that is connected to the control input terminal of the electronic switch for varying the lamp brightness in proportion to the PWM duty cycle. Specifically, the control circuit includes a temperature-sensing circuit for reducing the PWM duty cycle when the lamp temperature exceeds a designated or predetermined temperature. *Henry* does not disclose or suggest such subject matter.

In the Office Action, the Examiner states that *Henry* discloses a drive circuit for a lamp in Figs. 1 and 4. Specifically, the Examiner states that *Henry* discloses an electronic switch (804) connected in series with a lamp (5) and a source of DC voltage (Vdd). The Examiner further states that *Henry* discloses a PWM duty cycle and a temperature-sensing circuit in Col. 9, lines 1-12 and Col. 3, lines 54-65 of *Henry*. Applicants disagree.

First, the electronic switch (804) of *Henry* is not connected “in series” with the *Henry* lamp 5, as required by Applicants’ claims. Rather, the *Henry* switch is inductively coupled through a transformer 808 to the lamp. (see Fig. 4).

More importantly, while *Henry* discloses temperature-responsive control of his lamp 5 (see Col. 3, lines 52-65), and further discloses PWM-controlled dimming of the lamp (see Fig. 4

and description thereof), it does not disclose or suggest temperature-responsive control of PWM duty cycle, as required by Applicants' claims. The only discussion of temperature-responsive feedback control is in connection with Figs. 1-3A. The exact manner in which temperature responsive control is effected in the embodiment of Fig. 1 is not spelled out, but there is no mention of pulse width modulation.

Fig. 4 discloses an alternative embodiment wherein PWM control is effected by voltage and current feedback signals for performing a dimming operation. There is no mention of temperature sensing in connection with the embodiment of Fig. 4. The PWM control circuit of Fig. 4 includes neither a temperature-sensing element nor any type of temperature feedback signal. Thus, *Henry* does not disclose temperature-responsive control of a PWM duty cycle as required by Applicants' claims.

For at least these reasons, Applicants submit that claim 1 and claims 2-7, which depend from claim 1, are each patentably distinguished over *Henry* and in condition for allowance.

Claims 8, 18, 22, 23 and 25 include similar subject matter to claim 1. Specifically, each of these claims includes a device or step for sensing the lamp temperature and then reducing the PWM duty cycle in response to the sensed temperature when the sensed temperature exceeds a designated or predetermined temperature. As stated above, *Henry* does not disclose or suggest such subject matter. Accordingly, Applicants submit that claims 8, 18, 22, 23, and 25, and the claims which depend therefrom, are each patentably distinguished over *Henry* and in condition for allowance.

Applicants have added new claim 26, which states, among other things, that the drive circuit includes "an electronic switch galvanically connected in series with a lamp and a source of DC voltage . . ." As stated above, *Henry*'s switch is inductively coupled through a

transformer 808 to the lamp. *Henry* therefore does not disclose or suggest an electronic switch that is “galvanically” connected in series with the lamp as in claim 26.

For at least these reasons, Applicants submit that new claim 26 is patentably distinguished over *Henry* and in condition for allowance.

Claims 4-5, 9-10 and 24 are objected to as being dependent upon a rejected based claim but would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims. Applicants acknowledge that these claims are directed to allowable subject matter. Applicants, however, are not rewriting these claims at this time because Applicants believe that claims 4-5, 9-10 and 24 are allowable for the reasons provided above with respect to claims 1, 8, 18 and 23.

In light of the above, Applicants request that claims 1-12 and 18-26 be deemed allowable at this time and a timely notice of allowance be issued in this case.

A check in the amount of \$250.00 is submitted with this response to cover the fee for the newly added independent claim. If any other fees are due in connection with this application, the Patent Office is authorized to deduct the fees from Deposit Account No. 19-1351. If such withdrawal is made, please indicate the attorney docket number (25493-459900) on the account statement.

Respectfully submitted,

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